CLINICAL CASES

—OF—

HYDROADIPSIA,

—BY—

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HYDROADIPSIA,

With some Facts concerning the Water Supply of Living Bodies.

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In the prosecution of my inquiries in regard to the quanity of water drank in a given time by single individuals, I visited the Zanesville Glass Factories. In the window-glass department I learned that the blowers work between two furnaces, a melting and heating furnace; that in the warmest weather the principal blowers drank from fifty to sixty pints of ice water, each, in nine hours, the time usually occupied in blowing out a "melt." That the weight of glass blown averages four hundred pounds per hour, during seven hours, the remaining two hours being occupied in "splitting cylinders," etc. Some of the men will drink during the same time from one to three pints of beer, or an equivalent of spirits, in addition to their fifty to sixty pints of ice water, per nine hours. In the winter the consumption of water, per man, falls down to from twenty to twenty-five pints. The amount drank, per man, follows the external temperature very closely. I ascertained that the amount excreted by the kidneys was not perceptibly increased, nor was the color perceptibly changed by their increased consumption of water during working hours. Nor do the excreta from the bowels increase during their working hours when using such large quantities of water. When off work they do not drink more than three or four pints of water each in the whole twenty-four hours. And they do not eat more food at work than when lying idle.

The water drank at work is mostly eliminated at the cutaneous surfaces by sweating; perhaps some at the lungs, but certainly no considerable portion finds exit at the kidneys.

The foreman, from whom I mainly gathered these facts, is a

man weighing not far from a hundred and fifty pounds, looks pale after quitting work and getting on his clothing, for they work nearly naked in hot weather. They do not wear anything but pants, or drawers, and shoes, while at work; the shoes to protect their feet.

Perhaps the men, blowers and helpers, will hardly average in weight one hundred and fifty pounds per man. But take it at that, and it will be seen that they drink inside of three days, water equal in weight to that of their bodies.

Occasionally a man gets what they call "blown up with water;" that is, ceases sweating, and quickly becomes utterly helpless, and has to be carried out. They restore the sweating process by rubbing him briskly. As soon as the sweating process is restored he can go right to work again.

The men occasionally lose the sense of thirst—Hydroadipsia—in which condition they cannot continue work. To recall the sense of thirst they throw salt in their mouths, and chew and swallow it. When the sense of thirst returns, they resume work.

At the Ohio Iron Works, Rolling Mill department, the manager informed me that at the puddling furnaces, the men worked in front of the fires, the other side being open to the weather, in summer and winter; and, like the glass men, wore only pants and shoes. Those at the rolls, cutting and piling muck bar, shearing, etc. work differently, generally wore flannel shirts, pants, and shoes, and were not exposed to the same degree of heat as those at the boiling furnaces. That a "set" of men and boys, numbering one hundred and fifty, drink in hot weather from ten to twelve barrels, of from forty to fifty gallons each, of well, or spring water, in ten hours. Some years, when ice can be had, the men are supplied with ice water; and he thinks they do better on ice water, than when using that drawn from the well. Thinks there is less sickness among the men when they use ice water. Certainly less bowel complaint, and cramps, etc. In the winter, or cold weather, as at the glass factories, the consumption of water falls off one half at least. The consumption of water at the Iron Works, per man and boy, per ten hours, averages something over twenty pints. Those at the boiling furnaces running up as high as thirty pints per man.

Men who do not drink these quantities of water, at both Glass and Iron Works, soon fail in their work. It seems that this quan-

tity is about what is required, per man, to enable them to do their work in the time allotted by the managers. At the Blast Furnace, the manager could give me no exact information, as the men drank from a pump; but knew the quantity was large, as it seemed to him they were at the pump every few minutes. *Per contra.* The manager of a Rolling Mill at Columbus, O., who was in the office of the Blast Furnace at the time of my visit, informed me that he had two men in his mill—boiler and helper—exposed to high heat, who drank very little water, not more than a quart in twelve hours.

They were exceptionally good hands, and very moderate in everything. They were both religious enthusiasts, and drank by rule at stated intervals. Other men in the mill drank about as they did in the Iron Company's work.

These are certainly surprising results. Even the foremen and managers at the works were astonished at the quantity drank when attention was called to it. It is an every day affair with them, and they never had had attention drawn to it particularly before my visit. In my own person I kept as accurate an account as I could of the amount of fluid I drank on the twenty-eighth day of June, 1876. Counting from morning to morning, of water, milk, tea, and coffee, ten pints were consumed. Like the men at the Glass and Iron Works, I found my thirst for water followed the external temperature very closely. But I never pass a day, warm or cold, without drinking more or less water. Never drink spirits of any kind whatever.

Inquiries of individuals in health nearly always elicits the fact that they drink more or less water. Amongst a certain number there is a prevalent belief that it is injurious to drink water at meals, founded on statements to that effect they have read in newspapers, copied generally from some quasi medical journal of health.

Among invalids I rarely find a water drinker. Here are two clinical cases, the first a typical case of simple hydroadipsia; the second a complicated case, with hydroadipsia as its central defect. Both these parties have been heard from not three days since (Nov. 28, 1876.) Both are in fair health, and attending to ordinary duties daily.

J. D. aged 68, German, 35 years in Muskingum County. Is a blacksmith by trade, at which he worked steadily the first twenty years of his residence here. For the last fifteen years has resided on a farm in Wayne township.

Is rather slight in build, and never has been robust. Is perhaps, what would be called dull, that is, intellection is a slow process, never responds to a question promptly. Has, during a portion of his residence in the city, been a moderate beer drinker. Seldom tastes it now. In fact, seldom comes to the city. His health failed him very much about his 60th year; seemed to recover under the use the use of hard cider, with iron in it. Did not like the looks of it, thought it looked too much like ink, but was convinced that it did him good, and so continued to use it and recovered a fair measure of health. Has for several years lost entirely the sensation of thirst for water, and has very rarely drank it.

Monday May 15th, 1875. Mr. D. is in extremely poor health, and has been for several months. Is dull, stupid, listless, eats very little, and what he does hurts him. Has not tasted water, as water, for many months, drinks a little tea and coffee at meals, but never anything between meals. Does not rise till about ten o'clock A. M. Has no pain, except such as he attributes to food, in the region of the stomach. Sleeps tolerably well, does not get up at night oftener than once to void water. It is always scanty, high colored, and deposits a dense sediment when he passes it in a night vessel. Is sallow, shrunken, cadaverous, thin in flesh, and complains of great weakness. Is giddy when he attempts to walk. Bowels fairly regular, excreta small in quantity, and the feces dry and hard. Pulse very small and corded, flesh chilly and almost lifeless, temperature not taken, has no cough, cannot use tobacco, though accustomed to do so from early life, mainly smoking.

In critically studying his case I could not see that he had any organic changes of structure not incident to his time of life. The giddiness when walking, to be sure, pointed to considerable changes of structure in the brain and cord. But he had fair sight, and could read common print with 18 in. focus glasses, though he reads but little; takes no interest in newspapers, and confines his reading mainly to his catholic prayer book. He has not been to the city for six months, though living only seven miles from town.

A most carful scrutiny of his case convinced me he was a true hydroadipsiac, and that his physical condition was mainly to be attributed to defective water supply of his body, on his part. I based my prescription on that pathology, and asked him to take

milk, mainly, one and a half to two pints at a meal, to be placed before him boiling. To make it palatable, he was to add half a teaspoonful of common salt to each pint, with black pepper, and bread, plain or toasted. When he felt like it he could take boiling water, made palatable with salt, and sipped from a tablespoon, blowing each spoonful with his mouth so that it would not scald him. After this was taken he might have almost anything else he desired at meals. He was to drink cold water with bi. carb. potass. in it, if he had pain, or wind in the stomach, after his meals. In addition to this, I prescribed a weak solution of Per Chloride of Iron, with Tinct. of Capsicum and Chlorate of Potassa, after meals.

May 22nd, Mr. D. is up, and is very much better, skin has lost its sallow hue to a large extent; is full, and soft, and not in wrinkles, as a week since. Passes water in much larger volume, takes his milk regularly, thinks it very good, has no pain after meals now; pulse full, soft, and regular, though slow. Talks promptly, sleeps well, and has less giddiness, though still some. Is in fact a new man.

He got into my carriage and rode with me to a neighbors, something over two miles. Enjoyed his ride, and as it was dinner time, we had dinner at his neighbors, he sipping nearly three pints of boiling milk with pepper and salt in it. After that he had some ham, and eat an egg. After dinner he put on his hat, walked out, and lit his pipe, and had a smoke, and said it seemed just like it used to, years ago, when he enjoyed it so much.

He was to continue his milk diet, or broth, and water; and medicine occasionally.

I think this a typical case of hydroadipsia—loss of the sensation of water thirst. In his recovery, I give the medicine very little credit, but think the saturation of his body with fluids the real agency which in a week, worked such a change in his physical condition. If he keeps up a proper water supply for his body long enough to change his structures, and give exit to the bulk of the dead matter in it, he will be as well as he has been at any time for twenty years past.

I had requested him, in case he failed to sleep any night, or was restless, or "nervous" as it is sometimes called, he should sip a pint of boiling water. This happened the very first night after my first visit. He sipped the water, and as he expressed it, felt well, and soon went to sleep, and had a good nights rest

May 25th, 1876. Mrs. D. aged 50, widow; earns her living by working for ready-made clothiers. Has been sick for a month past, attended by two physicians of her own choice. She comes under my professional care as an out patient of the City Infirmary.

Inquiry elicits that she has been suffering with pain in the head nearly all the time she has been sick; at times she has paroxysms of terrible severity, with remissions of uncertain duration; but is almost never entirely free from it; goes to sleep, when she does sleep, with it, and wakes up with it, She is, and has been, sick at stomach, most of the time. Has no appetite, but eats, from a sense of duty a little bread and butter, which hurts her every time after eating it. Never drinks any water, either at, or between meals. Drinks some tea, perhaps a pint in 24 hours, which is all the fluid she takes. Has no thirst for water, and has not had for several years. Passes very little water from the bladder, and not oftener than twice in 24 hours. It is very high colored, and quickly smells bad. Is very pale and pasty in her complexion. Has not slept any that she is aware of for several nights. Does not sit up any. Pulse about 108, very small, thready, and weak. Temperature 100°.

Has taken medicine all the time she has been sick; has been blistered at nape of neck; does not know what medicine she has been taking. Says the physicians who have been attending her tell her she has softening of the brain. She does not expect to get well, but desires to have some relief from her suffering while she does live. Her tongue is heavily laden with fur.

With the condition of things in this woman's body, partly disclosed by her own statements, what is my duty as a physician? Am I to try to merge the phenomena into some "Disease" by name, and then, like my predecessors, prescribe for, or treat it? It may be, but that is not what I shall do. She is dry, shrivelled, and pinched up on the exterior. No process of her body is being performed as it would be in health. No appetite, no thirst for fluids, no sleep. My first duty, it seems to me, is to get her to sleep, and for that purpose she is to take chloral hydrat. and bromide of potash, one drachm chloral, one and one half bromide of potash to an ounce of vehicle, teaspoonful every half hour till asleep, and after, only as needed for that purpose. She is to drink a tea cup full of water, hot as she can take it, made palatable with salt, after each dose of

chloral. In the morning she is to take ten drops Fowler's solution, and repeat every six hours. To have milk, hot or cold, or both, for food, and to take three or four pints the next 24 hours. I leave her with the expectation that she will sleep the greater part of the night, and be better tomorrow morning.

May 26th, morning. Patient has not slept any, she says. A two ounce mixture of chloral more than three-fourths gone; has vomited her every time she took it, or swallowed water. Head aching severely, pulse 96. Temperature 98½°. Looks haggard and care worn.

My expectations have not been realized in regard to her condition. She is certainly no better. Inquiry brings to light the fact that she has not passed any water from her bladder during the night, has not, so far as she can remember, passed any for two days and nights. Has no desire to pass any now. Function the expression of the condition of structure behind it. The total suppression of urine is not present without adequate cause. What is it? Does it depend on structural changes in the kidneys? This is not probable. Much more likely it is due to the utterly inadequate water supply of her body lately. There is probably no softening of the brain, so called; nor any other permanent changes of structure in her body, other than these incident to her age. But physiological decay of the structure is almost suspended. My duty with this understanding of the real condition of things in her body, is to hurry up the rate of waste, and the elimination of effete matter from her body — matter no longer available for the purposes of life.

Therefore, omit, Fowler's solution perscribed last evening; and take a half grain of calomel granule every hour till stomach settles, bowels move, and she passes water. To aid these purposes—waste of existing tissue, which does not now perform physiological duty, and the exit of effected products from her body — she is to drink water as hot as it can be swallowed, sipped from a tablespoon, and made palatable with salt, all she can. May drink in addition cold water, with bi. carb potassa, teaspoonful to a pint, made palatable with lemon; and if she wants it, plain water sometimes. This she is requested to do, no matter whether it comes back by vomiting or not. She is to try to pass water every hour, and take no food, but may drink some milk.

Evening. Patient no better. Has taken medicine as requested, vomited very frequently, and drinks fluids as prescribed in the morning. Has intense headache. Has passed no water; nor have bowels moved. Is thoroughly disheartened; and friends have arrived from abroad to see her before death.

I feel confident that I am on the right track in regard to her treatment, and so recommended the same through the night that she has had during the day.

May 27th, morning. Patient is better this morning in many respects. Has began to pass water in small quantities from her bladder; and her bowels have moved though not freely. Is still somewhat sick at stomach, but vomits much less frequently. Head aches still, but much less severe than yesterday. Temperature 98½°. Pulse 96, still small and thready.

To continue calomel granules every two hours; to drink hot and cold water, and cold water with bi-carb. potassa. May have milk today.

27th evening. Bowels have moved very freely, and what passes from them is extremely offensive. A large volume of water has passed from her bladder. Stomach still sick, but much less so. Is a good deal warmer to the touch. Pulse slower, not counted; nor temperature taken, because she is so evidently better. No medicine to night, but is to continue drinking water, hot or cold, or both; and drink milk.

28th morning. Bowels continued to move at intervals through the night, and has passed urine largely. Has some headache, and is still more or less sick at stomach. Her pulse fuller and slower, but very soft, and easily obliterated by the pressure of the fingers. She says she is ever so much better. Her most urgent complaint is weakness.

The wasting processes are now as fully active as I could desire.

The condition of debility, as evidenced by the circulation, and her own complaint of weakness, made now for the first time, demands my attention. The indications are now to steady the process of waste, and advance the processes of repair. If I am not mistaken in my judgement, the "stored up force" in opium will relieve the remaining head ache, sick stomach, and give her rest, and restore to her a demand for food—new material. Therefore, of pills of opium and camphor, grs. j and ij., take one every three

hours. To take all the food she can, preferably in fluid form of broth, milk, etc., and continue to drink water as water.

28th evening. Much better; less headache and less sick stomach. Kidneys fairly active and bowels quiet. She is to continue pills, if awake, through the night.

29th morning. Has had an uninterrupted night's sleep, and feels better in every way. Pulse fuller and stronger. No head ache, no sick stomach, and begins to relish food. Asks to have solid food, and there being no objection, she may do so.

She is to take pills every 4 hours, and commences with Fowler's solution, 10 drops, 3 times a day.

29th morning. Mrs. D. is again better in every respect this morning. No head ache or sick stomach, and is sitting up in an easy chair. She has a clear complexion, but is very pale. Relishes her food, and she thinks she eats enough.

Pills every 6 hours. Fowler's solution.

30th. Patient sitting up, and gaining strength. Feels well. I explained to her that her sickness was largely due to her not taking water, or fluids, enough to carry on the work of life properly. That if she desired to remain well, she must drink water every day, never less than three pints every 24 hours. She commences work today.

June 12. Mrs. D. called to say that though she was still improving, her feet would swell towards night and hurt her. Her pulse had hardly regained the necessary strength. Tinct. digitalis, 30 drops, three times a day.

I see her through a window almost every day working at her sewing machine. I regard this as a complicated case of hydroadipsia. At my first examination I did not comprehend the extensive damage to structure, mainly owing to the deficiency of water supply. At my second visit I comprehended the whole of the case, having to suspend the accomplishment of my original purpose with chloral and arsenic. After having got up the requisite pace of waste, and eliminated some of the accumulated dead matter in her body, her appetite returned, which means the resumption of repair, and speedily regained more than her usual health for several years past. I certainly succeeded better than my predecessors, both of whom are regarded as good physicians. But they evidently treated her "diseases," while I treated the woman herself; supplied the defects of her body, due mainly to insufficient water supply.